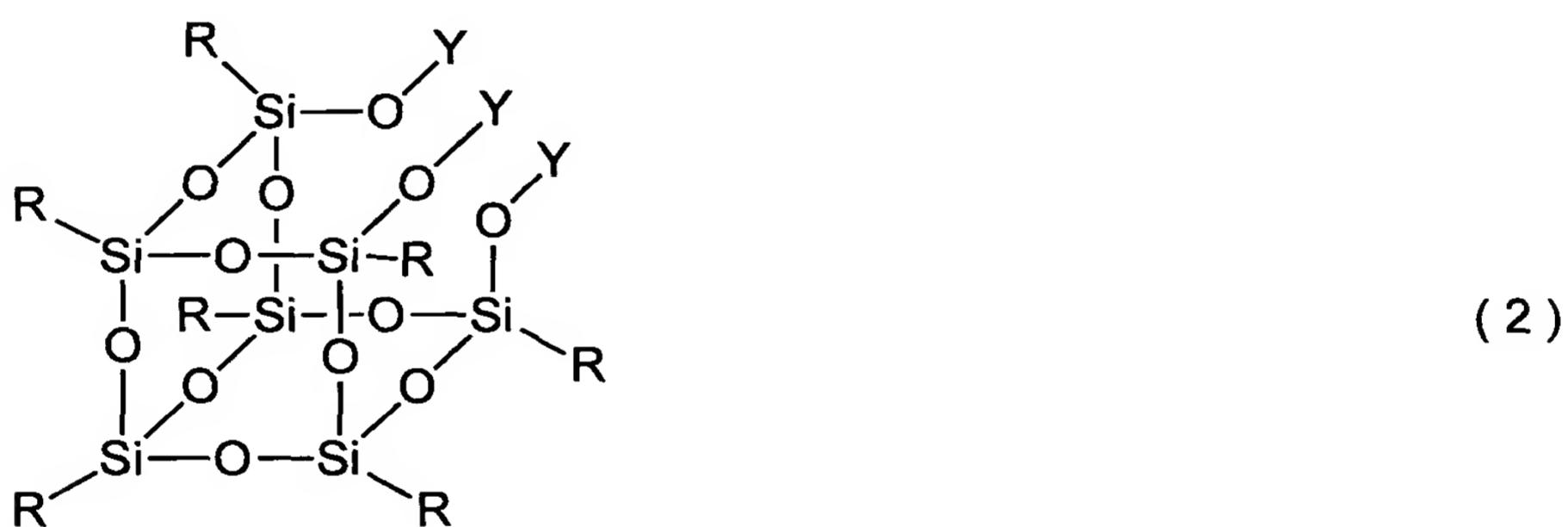
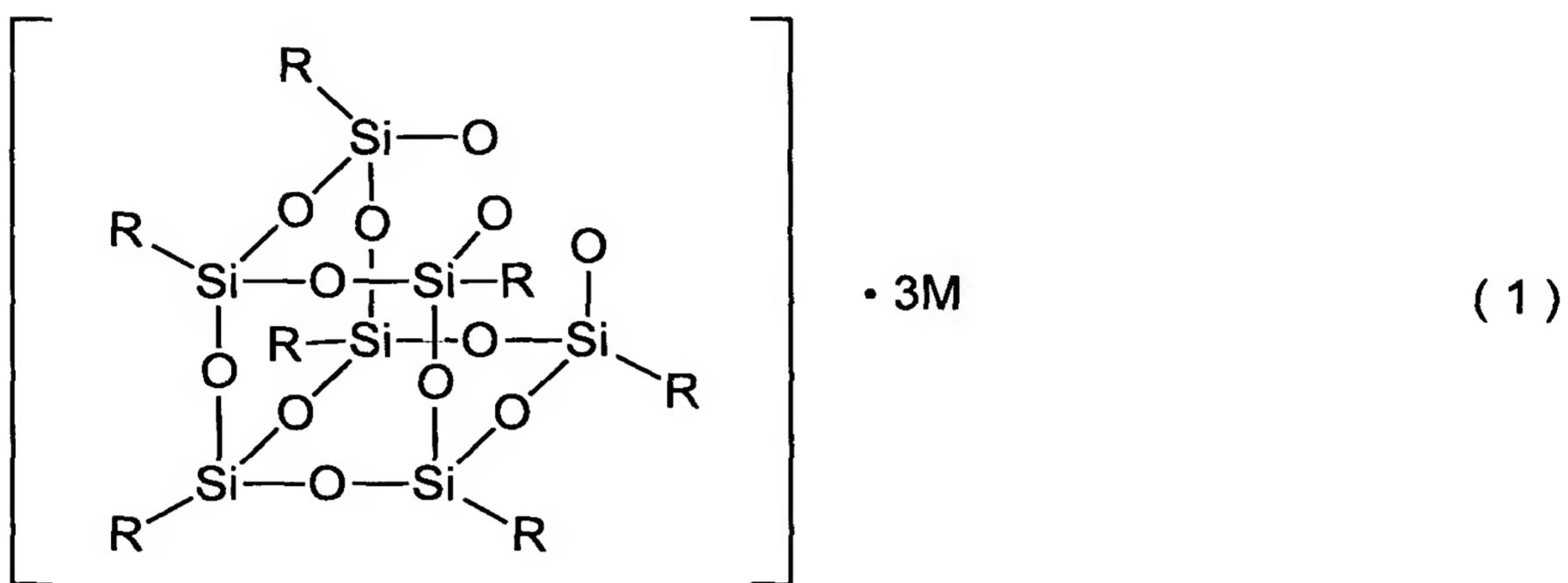


CLAIMS

1. A production process for a silsesquioxane derivative represented by Formula (2), characterized by
5 using a silicon compound represented by Formula (1):



wherein in Formula (1), each R is a group selected independently from hydrogen, the group of alkyls in which
10 the number of carbon atoms is 1 to 45, optional hydrogen may be replaced by fluorine, and optional -CH₂- may be replaced by -O-, -CH=CH-, cycloalkylene or cycloalkenylene, the group of substituted or non-substituted aryls, and the group of substituted or non-

substituted arylalkyls in which in the alkylene group thereof, optional hydrogen may be replaced by fluorine, and optional $-\text{CH}_2-$ may be replaced by $-\text{O}-$, $-\text{CH}=\text{CH}-$ or cycloalkylene; and M is a monovalent alkaline metal atom;

5 in Formula (2), R has the same meaning as that of R in Formula (1); each Y is a group selected independently from groups represented by Formula (3) and hydrogen; and at least one of Y is a group selected from the groups represented by Formula (3):

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wherein R^1 and R^2 represent independently the group defined in the same manner as R in Formula (1); Z is a functional group or a group having a functional group; provided that Z is not any of a group having a

15 dithiocarbamate group, a group having haloalkylphenyl and a group having an α -haloester group.

2. The production process according to Claim 1, wherein each R in Formula (1) is a group selected independently from hydrogen, the group of alkyls in which the number of carbon atoms is 1 to 20, optional hydrogen may be replaced by fluorine and optional $-\text{CH}_2-$ may be replaced by $-\text{O}-$ or cycloalkylene, the group of alkenyls in which the number of carbon atoms is 2 to 20, optional

hydrogen may be replaced by fluorine and optional -CH₂- may be replaced by -O- or cycloalkylene, the group of alkyls in which the number of carbon atoms is 1 to 10 and at least one -CH₂- is replaced by cycloalkenylene, the 5 group of phenyls in which optional hydrogen on the benzene ring may be replaced by halogen or alkyl having 1 to 10 carbon atoms, the group of phenylalkyls in which optional hydrogen on the benzene ring may be replaced by halogen or alkyl having 1 to 10 carbon atoms, and 10 naphthyl; in the alkyl having 1 to 10 carbon atoms which is a substituent on the benzene ring, optional hydrogen may be replaced by fluorine, and optional -CH₂- may be replaced by -O-, -CH=CH-, cycloalkylene or phenylene; and in alkylene of the phenylalkyl, the number of carbon 15 atoms is 1 to 12 , optional hydrogen may be replaced by fluorine, and optional -CH₂- may be replaced by -O-, -CH=CH- or cycloalkylene.

3. The production process according to Claim 1,
20 wherein each R in Formula (1) is a group selected independently from the group of alkyls in which the number of carbon atoms is 1 to 10, optional hydrogen may be replaced by fluorine and optional -CH₂- may be replaced by -O- or cycloalkylene, the group of phenyls in 25 which optional hydrogen on the benzene ring may be replaced by halogen, methyl or methoxy, the group of phenylalkyls in which optional hydrogen on the benzene

ring may be replaced by fluorine, alkyl having 1 to 4 carbon atoms, vinyl or methoxy, and naphthyl; and in alkylene of the phenylalkyl, the number of carbon atoms is 1 to 8, and optional -CH₂- may be replaced by -O-, -CH=CH- or cycloalkylene.

4. The production process according to Claim 1, wherein all of R in Formula (1) are the same group selected from the group of alkyls in which the number of 10 carbon atoms is 1 to 10, optional hydrogen may be replaced by fluorine and optional -CH₂- may be replaced by -O- or cycloalkylene, the group of phenyls in which optional hydrogen on the benzene ring may be replaced by halogen, methyl or methoxy, the group of phenylalkyls in 15 which optional hydrogen on the benzene ring may be replaced by fluorine, alkyl having 1 to 4 carbon atoms, vinyl or methoxy, and naphthyl; and in alkylene of the phenylalkyl, the number of carbon atoms is 1 to 8, and optional -CH₂- may be replaced by -O-, -CH=CH- or 20 cycloalkylene.

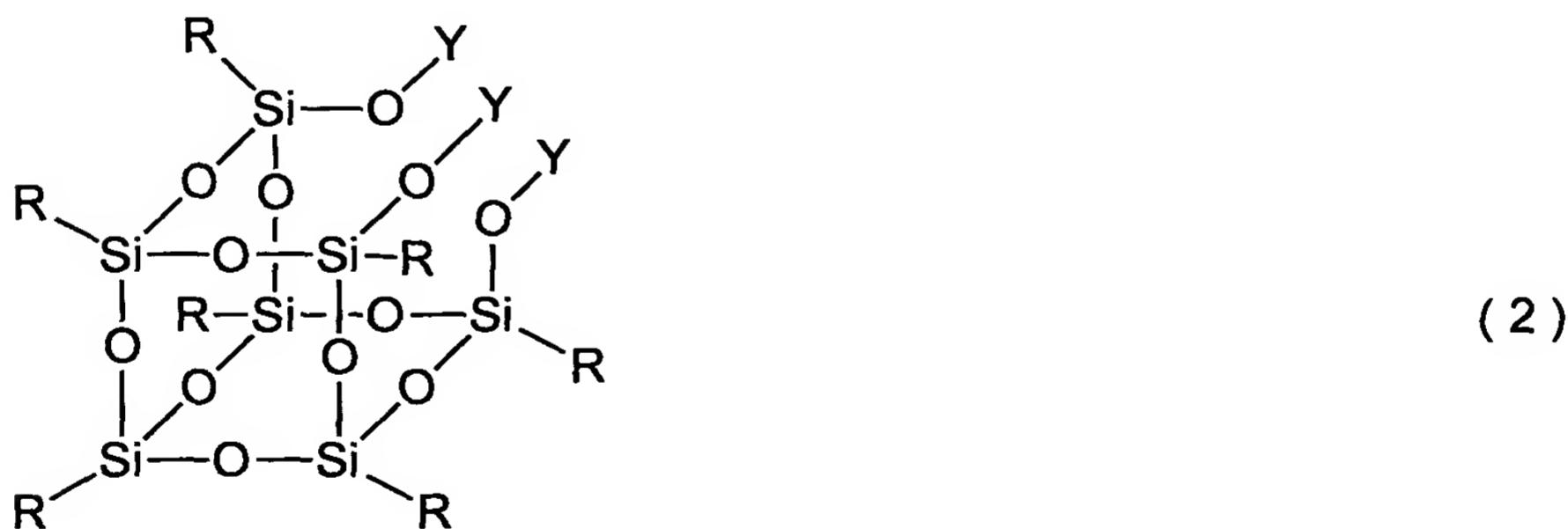
5. The production process according to any one of Claims 1 to 4, wherein M in Formula (1) as described in Claim 1 is Na.

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6. The production process according to any one of Claims 1 to 4, wherein M in Formula (1) as described in

Claim 1 is Na; in Formula (3) as described in Claim 1, R¹ and R² represent independently methyl, isopropyl, tert-butyl or phenyl; and Z is a functional group selected from the group consisting of hydrogen (bonded to Si atom), fluorine, chlorine, bromine, -OH, fluorinated alkyl, alkoxy, -COOH, -COO-, -OCO-, 2-oxapropanedioyl, polyalkyleneoxy, epoxy group, an oxetane ring, -NH-, -NH₂, -CN, -NCO, alkenyl, cycloalkenyl, -SH and -PH₂, or a group having the functional group, provided that Z is not any of a group having a dithiocarbamate group, a group having haloalkylphenyl and a group having an α-haloester group.

7. A silsesquioxane derivative represented by
15 Formula (2):



wherein each R is a group selected independently from the group of alkyls in which the number of carbon atoms is 1 to 20, at least one hydrogen is replaced by fluorine and optional -CH₂- may be replaced by -O-, the group of phenyls in which optional hydrogen on the benzene ring

may be replaced by halogen or alkyl having 1 to 10 carbon atoms, the group of phenylalkyls in which optional hydrogen on the benzene ring may be replaced by halogen or alkyl having 1 to 10 carbon atoms and in the alkylene group thereof, optional hydrogen may be replaced by fluorine and optional $-\text{CH}_2-$ may be replaced by $-\text{O}-$, $-\text{CH}=\text{CH}-$ or cycloalkylene, and naphthyl; in the alkyl having 1 to 10 carbon atoms which is a substituent on the benzene ring, optional hydrogen may be replaced by fluorine, and optional $-\text{CH}_2-$ may be replaced by $-\text{O}-$, $-\text{CH}=\text{CH}-$, cycloalkylene or phenylene; each Y is a group selected independently from groups represented by Formula (3) and hydrogen; and at least one of Y is a group selected from the groups represented by Formula (3):

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wherein R^1 and R^2 represent independently the group defined in the same manner as R in Formula (2); Z is a functional group selected from the group consisting of hydrogen (bonded to Si atom), fluorine, chlorine, bromine, 20 -OH, fluorinated alkyl, alkoxy, $-\text{COOH}$, $-\text{COO}-$, $-\text{OCO}-$, 2-oxapropanedioyl, polyalkyleneoxy, epoxy group, an oxetane ring, $-\text{NH}-$, $-\text{NH}_2$, $-\text{CN}$, $-\text{NCO}$, alkenyl, cycloalkenyl, $-\text{SH}$ and $-\text{PH}_2$, or a group having the functional group; provided that Z is not any of a group having a

dithiocarbamate group, a group having haloalkylphenyl and a group having an α -haloester group.

8. The silsesquioxane derivative according to

5 Claim 7, wherein each R in Formula (2) is a group selected independently from the group of alkyls in which the number of carbon atoms is 1 to 10, at least one hydrogen is replaced by fluorine and one $-\text{CH}_2-$ may be replaced by $-\text{O}-$, the group of phenyls in which optional 10 hydrogen on the benzene ring may be replaced by halogen, methyl or methoxy, the group of phenylalkyls in which optional hydrogen on the benzene ring may be replaced by fluorine, alkyl having 1 to 4 carbon atoms, vinyl or methoxy and in the alkylene group thereof, the number of 15 carbon atoms is 1 to 8 and optional $-\text{CH}_2-$ may be replaced by $-\text{O}-$, $-\text{CH}=\text{CH}-$ or cycloalkylene, and naphthyl.

9. The silsesquioxane derivative according to

Claim 7, wherein all of R are the same group selected 20 from the group of alkyls in which the number of carbon atoms is 1 to 10, at least one hydrogen is replaced by fluorine and one $-\text{CH}_2-$ may be replaced by $-\text{O}-$, the group of phenyls in which optional hydrogen on the benzene ring may be replaced by halogen, methyl or methoxy, the group 25 of phenylalkyls in which optional hydrogen on the benzene ring may be replaced by fluorine, alkyl having 1 to 4 carbon atoms, vinyl or methoxy and in the alkylene group

thereof, the number of carbon atoms is 1 to 8 and optional $-\text{CH}_2-$ may be replaced by $-\text{O}-$, $-\text{CH}=\text{CH}-$ or cycloalkylene, and naphthyl.

5 10. The silsesquioxane derivative according to Claim 7, wherein all of R in Formula (2) are phenyl, and R¹ and R² in Formula (3) represent independently methyl, isopropyl, tert-butyl or phenyl.

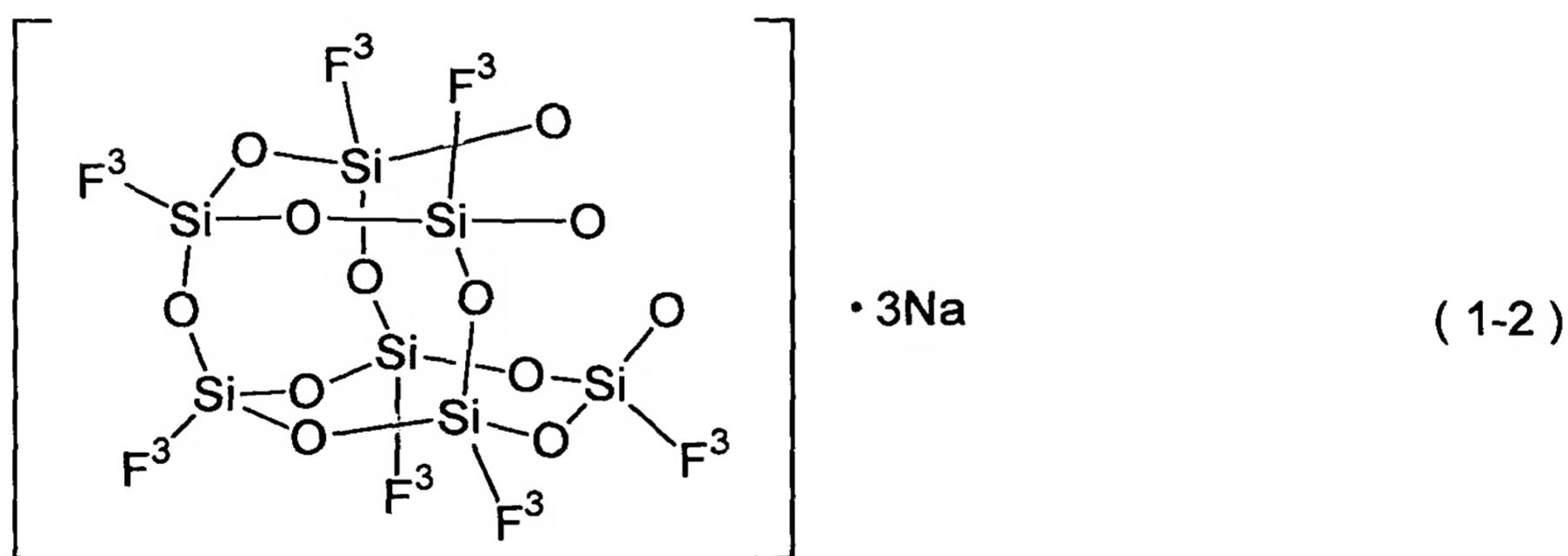
10 11. The silsesquioxane derivative according to Claim 7, wherein all of R in Formula (2) are alkyl in which the number of carbon atoms is 1 to 10, at least one hydrogen is replaced by fluorine and one $-\text{CH}_2-$ may be replaced by $-\text{O}-$, and R¹ and R² in Formula (3) represent independently methyl, isopropyl, tert-butyl or phenyl.

15 12. The silsesquioxane derivative according to Claim 7, wherein all of R in Formula (2) are 3,3,3-trifluoropropyl, and R¹ and R² in Formula (3) represent independently methyl, isopropyl, tert-butyl or phenyl.

20 13. The silsesquioxane derivative according to Claim 7, wherein all of R in Formula (2) are tridecafluoro-1,1,2,2-tetrahydrooctyl, and R¹ and R² in Formula (3) represent independently methyl, isopropyl, tert-butyl or phenyl.

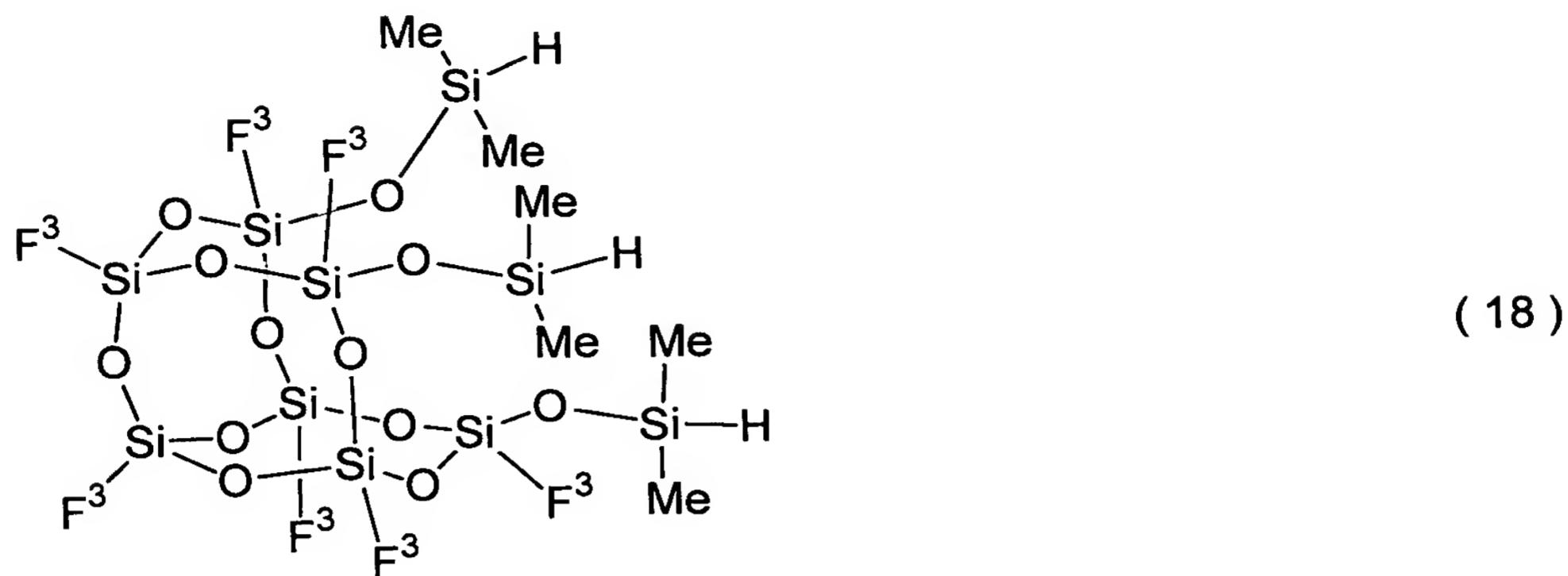
14. The silsesquioxane derivative according to any one of Claims 7 to 13, wherein Z in Formula (3) as described in Claim 7 is hydrogen, chlorine, -OH, alkenyl, fluorinated alkyl, or a group having any of fluorine, 5 chlorine, bromine, -OH, alkenyl, fluorinated alkyl, -COOH, 2-oxapropanedioyl, polyalkyleneoxy, acryloyloxy, methacryloyloxy, oxiranyl, 3,4-epoxycyclohexyl, oxetanyl, oxetanylene, -NH₂, -CN and -SH; provided that Z is not any of a group having a 10 dithiocarbamate group, a group having haloalkylphenyl and a group having an α -haloester group.

15. A compound represented by Formula (1-2):



15 wherein F³ is -CH₂CH₂CF₃.

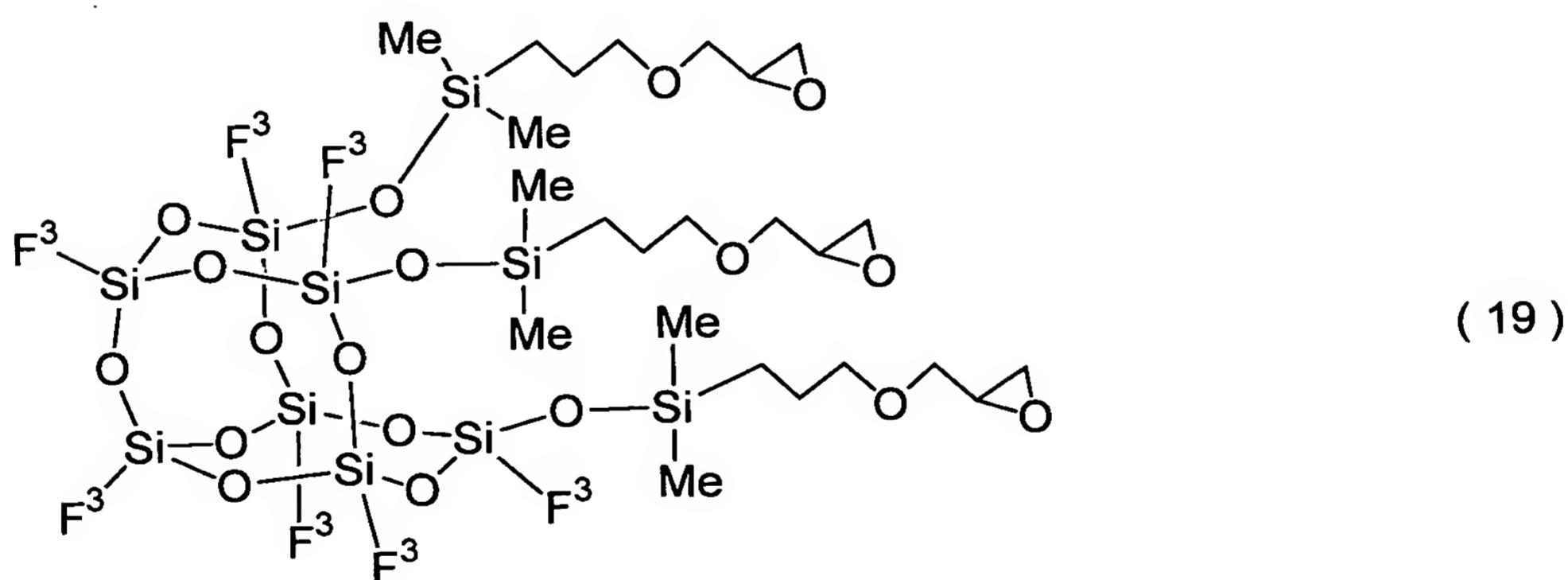
16. A compound represented by Formula (18):



wherein F³ is -CH₂CH₂CF₃, and Me is methyl.

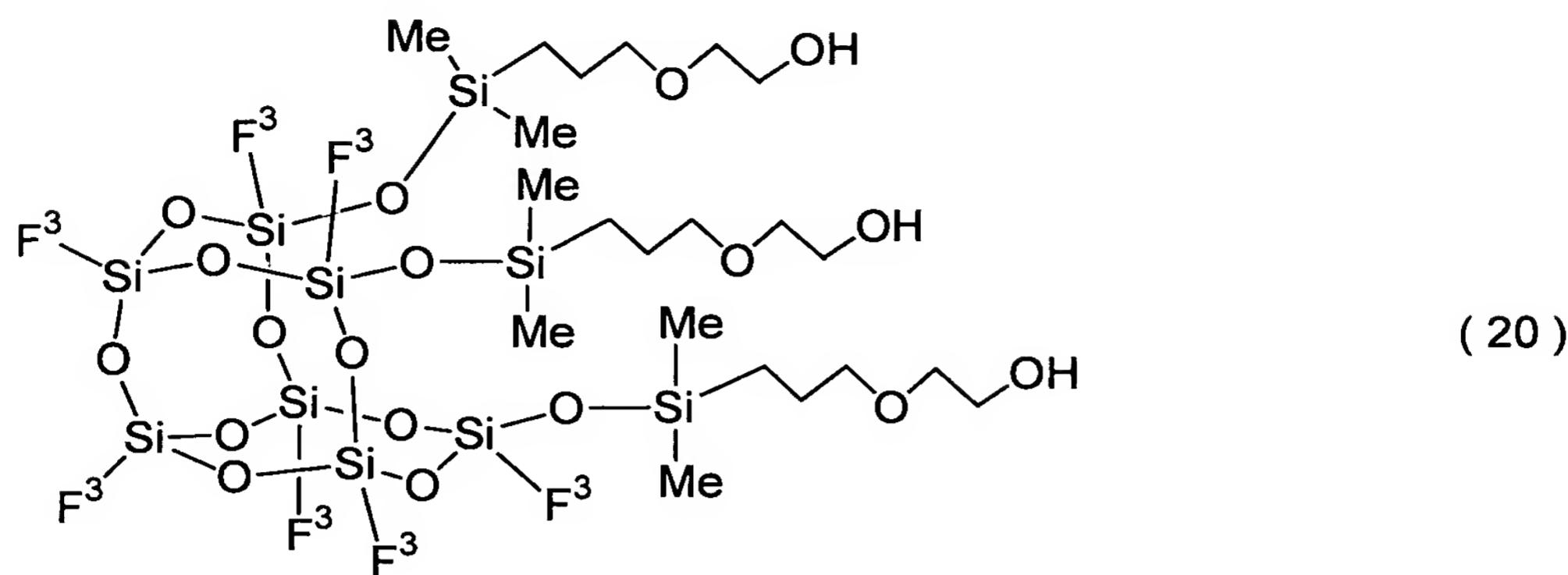
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17. A compound represented by Formula (19):



wherein F³ is -CH₂CH₂CF₃, and Me is methyl.

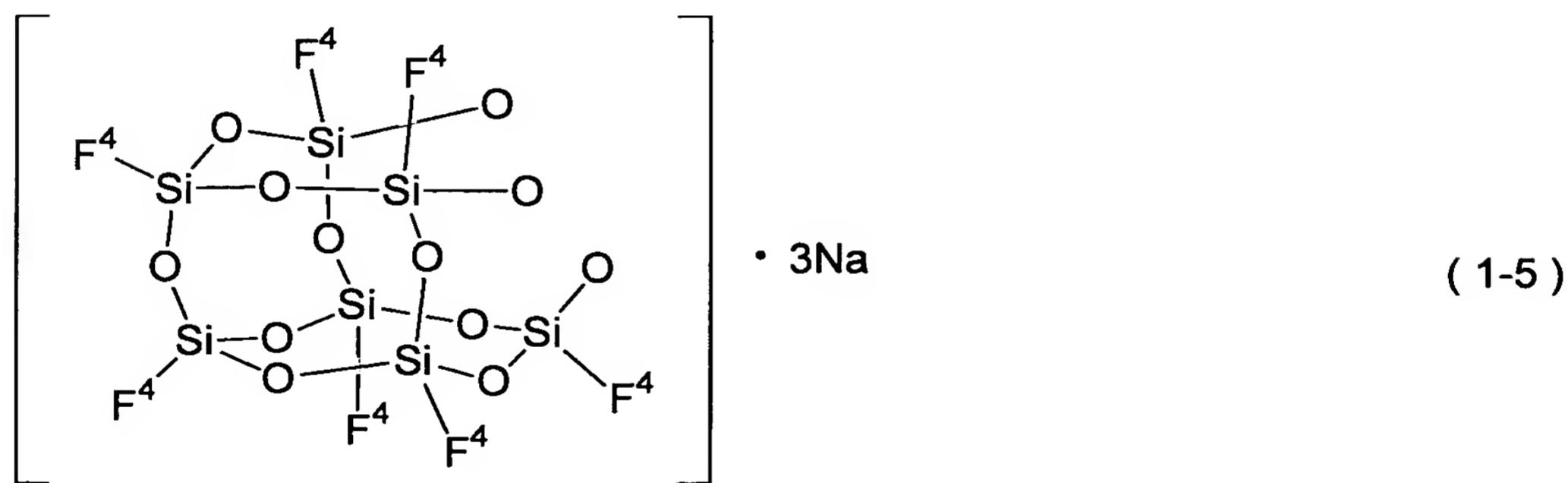
18. A compound represented by Formula (20) :



wherein F^3 is $-CH_2CH_2CF_3$, and Me is methyl.

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19. A compound represented by Formula (1-5) :



wherein F^4 is $-CH_2CH_2(CF_2)_5CF_3$.